Borough of Southend-on-Sea.

ANNUAL REPORT

UPON THE

STATE OF PUBLIC HEALTH

IN THE

BOROUGH OF SOUTHEND-ON-SEA,

FOR THE YEAR 1896.

BY

A. CLOUGH WATERS, M.B., B.S.,

MEDICAL OFFICER OF HEALTH.

SOUTHEND-ON-SEA:

Printed by J. Francis & Sons, 55, High Street.

Whitegates,

February 23rd, 1897.

TO THE HEALTH COMMITTEE OF THE SOUTHEND-ON-SEA TOWN COUNCIL.

Mr. Chairman and Gentlemen,

Dr. Bruce Low in a report to the Local Government Board (dated July, 1896), dwells on the increased efficiency by the Committee in the sanitary administration of the Borough, and the promise therefrom of the discouragement of infectious disease.

The Eastern Valley Sewerage Scheme will be completed this summer, and when the Western Valley is dealt with on the same principle, these improvements will be the most important the town has ever known.

The "house to house inspection" now in course of progress has been fully justified, and will when finished, together with both sewage schemes, put the town in a greatly improved sanitary condition.

I have to thank the Committee for the invariable consideration and support afforded me since my appointment.

I am, Mr. Chairman and Gentlemen,

Your obedient servant,

A. CLOUGH WATERS,

Medical Officer of Health.

BOROUGH OF SOUTHEND-ON-SEA.

Health Committee:

The Mayor (Mr. Councillor Tolhurst).

Mr. Alderman Burrows, J.P.

,, Councillor Bowmaker (*Chairman*).

,, ,, Browne

,, ,, Christmas

,, ,, Gooch

,, ,, Ramuz

,, ,, Wright, J.P.

Town Clerk:

Mr. W. Gregson.

Health Officials:

Chief Inspector of Nuisances Mr. W. Whur.

Assistant ,, ,, ,, W. H. Carr.

Medical Officer of Health:

A. Clough Waters, M.B., B.S.

VITAL STATISTICS.

The means adopted during the past two years of estimating the population of the Municipal Borough, by counting the number of inhabited houses at the beginning of July and multiplying the result by 5·2, the rate per house at the last census, was carried out this year, and the increase shews the continued growth and prosperity of the town.

	1896	1895	1894
Inhabited houses	3371	3116	2963
Uninhabited houses	49	81	90

This gives a population for 1896 of 17,529, as against 16,203 in 1895, and 15,407 in 1894.

The increase of 1,326 inhabitants as compared with last year is very gratifying, as I am sure the census rate of 5·2 underestimates the number of persons per house.

Census Rate.

In 1891 was 12,333 inhabitants, and estimating the population on that basis for this year gives 15,500 persons.

Area of Borough.

The number of acres is 3,441, giving a density of population of 5·09 per acre, as compared to 4·70 in 1895.

The Corporation are applying for powers to incorporate Southchurch, which has an area of 1,732 acres and a population of 1,000. The sanitary reasons in support of this application will be found on page 36.

Births.

The number registered in the year was 474—221 boys and 253 girls, and of these 22 were illegitimate—12 boys and 10 girls.

This gives a birth rate of 27·04 per 1,000 inhabitants, as compared to 26·29 in 1895.

Table shewing the number of births registered the past five years:—

	1896	1895	1894	1893	1892
Males	221	209	202	193	182
Females ...	253	217	163	199	169
Totals ...	474	426	365	392	351

Deaths.

During the year 295 were registered in the Borough—132 males and 163 females—which includes 25 not belonging to the district, and this number I subtract, but add 6 paupers dying in the Rochford Union Workhouse who belonged to the town, the result being a total of 276, and giving a death-rate of 15·74.

Table shewing number of deaths registered the past five years:—

	1896	1895	1894	1893	1892
Males ...	132	142	95	100	128
Females ...	163	121	109	97	128
Totals ...	295	263	204	197	256

The increase in the death rate is due to the prevalence of measles in the early months of the year, and to the infantile mortality owing to diarrhœa in July, August and September.

More than a fifth (61) occurred in persons over 65, and nearly a fourth (74) in children under one year.

There were 7 uncertified, as compared to 10 in 1895.

The table below shews birth and death rates on the population of the Borough—17,529

Birth rate	27·04 per 1,000 inhabitants.
Death rate	15·74 ,, ,,
Zymotic death rate	2·92 ,, ,,
Zymotic case rate (of all cases notified	8·27 per 100 cases.
Infantile mortality (under 1 year) compared to number of births	147·67

Infantile Mortality.

I drew attention in my first report to the Council of the importance of this subject, and the fact that 74, or about a fourth of the total number of deaths, are under one year, shews the influence this has on increasing the death rate.

Table shewing causes of death under 1 year :—

Diarrhœa	18
Premature Births	17
Disease of Respiratory Organs	12
Disease of Digestive Organs	11
Convulsions...	6
Measles	4
Scrofulous Diseases	2
Nervous System	2
Diphtheria	1
Overlaying (Inquest)	1
Total	74

Diarrhœa and measles I refer to under non-notifiable Zymotic diseases.

Premature Births. Of the 17, fourteen ranged in age from two months to one hour, and three respectively three, six and nine months, the causes being varied, such as "immaturity at birth," "congenital debility," and "inanition at birth."

Disease of the Respiratory Organs. The majority of the 12 deaths was from bronchitis.

Disease of Digestive Organs. The 11 deaths under this heading might be traced to ignorance in the feeding of infants, and to the neglect of cleanliness.

Inquests.

During the year 17 were held—12 on males and 5 on females, the causes of death being as follows :—

1. Natural Causes	5
2. Accidental—	
Fractured Spine	1
Fractured Thigh	2
Burns	1
Suffocation in sand pit	1
Overlaying	1
Falling out of a train	1
Syncope at child birth	1
3. Drowning—	
Found drowned	3
Suicidal	1
Total	17

Six of the above were held on visitors, including the four cases from drowning.

ZYMOTIC DISEASES.

The Infectious Diseases Notification Act has been in force in the Borough since 1890, the notification being sent by the medical attendant, but in view of the many cases, especially of scarlet fever, which are not notified by the parents, on the plea of ignorance, until some complication necessitates medical advice, I again refer to Section 3, whlch states that it is the duty of every householder to report to the Medical Officer of Health any case of infectious disease occurring in the house.

One householder notified a case of scarlet fever, which I verified on inspecting the child.

A weekly return of notifications is forwarded to the Local Government Board, who furnish me with a return of cases occurring in such localities as send them weekly reports. This is in addition to the monthly return sent to Dr. Thresh, the County Medical Officer, who supplies me with a compilation of the cases notified in the county.

The increase of notifications this year is due to scarlet fever and diphtheria, although the zymotic death rate is raised by an epidemic of measles in the spring, and the presence of summer diarrhœa in July, August and September.

Number of notifications the past five years :—

1896		1895		1894		1893		1892
269	.....	170	.....	227	.....	287	.....	261

Of 269 notifications, 184, 39 and 46 were respectively in the districts of St. John's, All Saints and St. Mary's.

Table showing the number of notifications each month :—

	Variola.	Scarlet Fever.	Diphtheria and Membranous Croup.	Enteric Fever.	Puerperal Fever.	Erysipelas.	Total number of cases each month.
January ...	2	8	2	8	—	2	22
February ...	—	4	2	—	—	—	6
March ...	—	3	2	1	—	—	6
April ...	—	5	4	—	—	—	9
May ...	—	5	3	2	—	2	12
June ..	—	4	6	2	1	2	15
July ...	—	24	4	4	—	—	32
August ...	—	18	5	23	—	—	46
September ...	—	6	5	23	—	1	35
October ...	—	8	10	19	—	2	39
November ...	—	8	7	3	—	1	19
December ...	—	9	8	10	—	1	28
Total ...	2	102	58	95	1	11	269

The 24 cases of scarlet fever in July resulted from an outbreak in the London Road Board School; and the 46 cases of enteric fever in August and September were of corresponding date with an outbreak of diarrhœa.

Table of notifications, &c., with zymotic death rate :—

	Total No. of Cases.	Withdrawn.	Imported.	Deaths.	Deaths per 1000.
Variola	2	—	—	—	0·00
Measles	—	—	—	13	0·73
Scarlet Fever	102	—	11	—	0·00
Diphtheria and Membranous Croup	58	—	5	8	0·45
Whooping Cough	—	—	—	4	0·22
Diarrhœa and Dysentery ...	—	—	—	17	0·96
Fever (chiefly Enteric) ..	107	3	4	10	0·51
Totals	269	3	20	52	2·92

From the above table it will be seen that the high zymotic death rate is owing to the mortality from measles and diarrhœa.

The death rate from diphtheria and enteric fever is nearly the same as in 1895.

NOTIFIABLE ZYMOTIC DISEASE.

Variola (Small Pox)

With the exception of two cases owing their origin to contact with a case notified the previous year the town has been free from this disease. Both cases were removed to the hospital and recovered, quarantine of 18 days being imposed on those living in the infected house.

Vaccination and Re-Vaccination.

In the early part of the year the Health Committee wrote the Rochford Board of Guardians advising enforcement of the Vaccination Act and also Re-Vaccination, this the Board agreed to do at one meeting, only to rescind it at the following.

After removal of one case to the hospital, two of the three inmates remaining in the house were re-vaccinated, but the other, a man who had not been vaccinated, refused, with the result that in a fortnight he sickened with Small Pox (confluent).

Scarlet Fever.

Although there has been an increase in the number of notifications as compared to previous years, yet there is no corresponding augmentation of deaths, and this may be ascribed to the fact that the cases were of a mild type, many being treated as sore throat until peeling became evident, and then medical advice was sought.

Of the 102 notifications, only one death resulted and that a visitor (female, 23) who arrived in the town with the rash well developed. 11 cases were imported, and all shewed symptoms within three days of arrival.

Table shewing sex and ages of all cases notified :—

	Under 5 years of age.	Under 10 years of age.	10 years of age and upwards.	Totals.
Males	3	19	23	45
Females	9	21	27	57
Totals	12	40	50	102

The ages ranged from a female 6 months to a male 47 years, and it will be seen that half the cases notified were 10 years and upwards.

Table shewing number of notifications the past 5 years with deaths.

	1896	1895	1894	1893	1892
Total number of notifications	102	26	31	68	56
Deaths	1	0	0	1	1

The 102 notifications infected 73 houses, and secondary cases occurred in three houses.

Return cases. Special care has been taken in the discharge of patients, and although 2 cases occurred, one after the discharge of a man who had been nearly 11 weeks in the hospital, and the other after 7 weeks, it yet remains to definitely trace the cause.

No milk-supply has been implicated. In July an outbreak owed its origin to three children attending the London Road Board School whilst peeling, and this is referred to under Schools.

Diphtheria and Membranous Croup.

In common with other localities, this disease shews a tendency to increase, and as I have mentioned on several occasions great difficulty is found in determining origin and cause. Excluding Milk the causes bearing the nearest relations are :—

(*a*) Dampness of Soil.
(*b*) School Attendance.
(*c*) More liable to be present in badly sewered towns.

The 58 cases notified include 2 as Membranous Croup, this disease now being recognized as Diphtheria, 5 cases were imported,

and of these 2 on inquiry came from houses previously infected, 2 had marked evidence of the disease, and in 1 there was a divergence of medical opinion.

Eight deaths were in persons belonging to the district, giving a zymotic death rate of 0.45 as compared to 0.43 in 1895.

Two deaths were certified of visitors from paralysis, both arriving in the town two months after the attack and not notified, in addition 1 visitor was infected when brought down, and died the following day.

Excluding the 5 imported cases, and also two cases from a house in the outlying district with sewage polluted drinking water, the remaining 51 cases infected 38 houses, and of the latter 18 owing to leaky drains allowed sewer gas to enter the house.

One fatal case was present in a milk shop, the occupier closing shop on my recommendation, and giving a list of customers.

No other case traced to this milk supply.

Nine cases occurred in a school, out of 80 inmates, the drains allowing sewer gas to freely permeate the house. The milk supply came from two cows kept on the premises and was common to all the children.

Number of Diphtheria and Membranous Croup cases notified, and the deaths registered the past 5 years.

	1896	1895	1894	1893	1892
Notifications	58	35	48	79	101
Deaths	9	10	7	9	31

Antitoxin.

The value of this specific is now well established, many cases which formerly from their severity would have been pronounced hopeless, are now found to yield to treatment. In my report for 1895 I drew public attention to the necessity of exercising greater care in the treatment of sore throats, and in mentioning this again it is with the hope of emphasising the importance of early diagnosis and treatment in order to get the full value of antitoxin.

Bacteriological Examination.

Dr. Thresh has hitherto kindly undertaken the examination of any throat-product; but as a Laboratory has been fitted up at the Sanatorium, the medical practitioners will now have the opportunity of having any throat-product examined in the town. This method of diagnosis, has conclusively demonstrated its value, and in certain cases is the only trustworthy procedure.

Dr. Bruce Low in his report on the prevalence of Diphtheria in Southend mentions the following conditions among others as conducive to this disease.

(*a*) The Rural District of Rochford has never been free from this disease the past 10 years.

(*b*) Proximity to London where disease is excessively prevalent.

(*c*) Overcrowding, together with personal infection.

(*d*) Convalescent Homes.

ENTERIC (TYPHOID) FEVER.

The number of cases notified was 95, and of these 3 were withdrawn, 2 proved not to be enteric, and 4 imported, leaving 86 cases originating in the Borough, of whom 40 were males and 46 females.

Of the 10 deaths 1 was a boy notified in 1894, and two were visitors arriving in a state of collapse and dying within three days.

The following table shews number of cases notified the past 5 years with deaths :—

	1896	1895	1894	1893	1892
Number of Cases	86	88	113	132	68
Deaths	9	8	12	16	6

Zymotic death rate on the population of 17,529 was 0.51 per 1000.

The case rate was 10.00 per 100.

The number of houses infected was 71 (in 7 two cases were present in each, in 1 five and in 1 three) including the Sanatorium, where two nurses contracted the disease, and a house in the outlying district with sewage contaminated drinking water.

In 28 houses the drains were defective.

15 houses drained directly into Marine Parade Sewer including Scott's Villas Sewer.

In 8 houses the disease had been present before, and 6 of these in 1895.

The following was the number of infected houses in connection with each sewer outfall.

Pier Outfall 38, Hamlet Valley 7, Castle 25.

No case occurred on the Prittlewell tank system, which consists of 37 privies draining into cesspits.

As a rule the outbreaks have been in the smaller houses, and in the poorer parts of the town.

PROBABLE CAUSES OF THE ENDEMIC PREVALENCE OF ENTERIC FEVER.

(1) 13 were secondary cases, including 5 in attendance on patients.

(2) 2 sewage contaminated drinking water.

(3) 3 cases developed in persons who complained of offensive smells from manholes, two being sick directly afterwards.

(4) Inquiry was made in every case as to shell-fish, but in no case could this be definitely put down as a cause.

(5) Defective house drains etc.

In my report for 1895 I dwelt upon the fact that in my opinion Enteric Fever in the Borough was largely due to pollution of the soil, and I decided to test the truth of this cause by means of a bacteriological investigation.

For this purpose 4 specimens of soil were sent to Dr. Bernard Dyer in July ; the specimens being taken from different parts of the town.

1 Sand within three feet of a sewer.

2 Earth from near a disused sewer, in this case several persons suffered from Enteric Fever in February, 1895, since which time a new sewer has been laid and the house connected.

3 Earth near disused cesspool.

4 Sand from next an old drain.

Dr. Bernard Dyer in his report draws attention to the well known difficulty of detecting with accuracy the typhoid bacillus, especially in soil ; but found himself in a position to state that in specimen "2" a bacillus was present indistinguishable by a known test from that organism. In all probability it was the specific bacillus of typhoid fever.

In the other three specimens the bacillus was not found; but this failure by no means proves that it was absent.

The most important result of the investigation however remains to be mentioned. All four samples contained the "Bacillus Coli Communis," numbers 1, 2 and 3, "pretty abundantly," while in No. 4 it was clearly recognisable.

The practical value of this result will at once be seen when it is stated that this bacillus (bacillus coli communis) is almost characteristic of the presence of sewage.

It is the sewage organism par excellence and proves the soil is polluted with sewage.

This being the case it is that where "The living sewage organisms are, there also may those of typhoid fever lurk, even if undetected."

In this connection it may be noted that specimen 2 viz:— that in which an organism was found indistinguishable from that of typhoid fever, was taken from near a sewer which had been attached to a house in which three cases of fever existed the previous year.

The result of the examination helps to prove my previously expressed opinion, and as fuller evidence I call attention to the relation of the notifications to Diarrhœa mortality.

	Notifications of Enteric Fever	Deaths from Summer Diarrhœa
July	4	4
August	23	13
Sept.	23	3

I cannot do better than quote the opinion of Dr. Bruce Low in his report to the Local Government Board, as to the conditions maintaining Enteric Fever in the town (dated July, 1896.)

"The Medical Officer of Health, discussing in his Annual Report for 1895 the "Probable Causes of the Endemic Prevalence of Enteric Fever" in Southend, exonerates the water supply, and does not find any evidence against the milk service. He finds secondary cases arising in families where adequate recognition of the necessity

for precautionary measures has been wanting. Family predisposition has been noted by him. In no less than 54 per cent. of the cases investigated the infected houses had drainage defects. He refers at some length to the practice that has prevailed of burying excreta of fever patients in gardens, and he also alludes to the practice of putting imperfectly disinfected stools down the sometimes leaky house drains. He believes that the soil of the town becomes specifically polluted in this way. The rise and fall of subsoil water is discussed by him.

Finally, he speaks of the admittedly defective condition of certain sewers, which are at times tide-locked and allow of escape of sewage into the surrounding soil, and which occasionally flood the basements of houses draining into them. He refers specially in his report to the condition of the Marine Parade and Scott's Villas sewers, which he asserts are in a state "most dangerous" to the public health, "with open joints, almost level, and laid in running sand," the insufficiency of the size of the outfalls, and their obstruction at times by the tide, are also spoken of. Danger, too, from shell-fish is also mentioned.

The measures he advises and adopts in dealing with fever cases, are :—

(1) The removal of cases to the Sanatorium.

(2) Daily flushing of all sewers known to be defective.

(3) Flushing of drains and sewers at times with corrosive sublimate (1 in 1000).

(4) The placing of additional flap-valves and ventilation shafts at certain points of junction between the high and low level sewers.

Upon the whole I agree with Dr. Waters, and am disposed to refer the endemic prevalence and seasonal development of Enteric Fever in Southend to sustained befoulment of the superficial soil.

The effect of leaking house drains and defective sewers, permitting in former years escape of specifie excremental matter into the porous soil of the place is, I believe, now being witnessed; and it is interesting in this connexion to note that faulty sewers have existed to a greater extent in St. John's than in any other part of the town, and that in this parish there has been for a number of years the greatest incidence of Enteric Fever. The researches of Ballard show

that the presence of much organic matter in a porous soil renders it distinctly more favourable to the development of diarrhœal diseases, of which Enteric Fever must be accounted one of the chief; and that this condition of soil, combined with the raising of the ground temperature beyond a certain point, has a considerable effect upon the incidence of, and mortality from, filth diseases. Taking the year 1893 as an example, it is found that there was a hot, dry summer, and this appears to have been associated with an increased development of Enteric Fever in Southend, as in other localities where the conditions of soil were similar.

These defects in drains and sewers have of late years become greatly reduced in amount, and it may be hoped that the re-laying of the olden sewers and the construction of others of more adequate size when needed, the dealing with the tide-locked sewer outfalls by pumping to a tank to discharge only on the ebb, and the gradual replacing of the badly-laid and badly-jointed house drains by carefully constructed and properly jointed new pipes, will have done much to bring to an end specific contamination of the soil in Southend. But it has to be borne in mind that much specific fæcal matter has been in the past habitually buried, and what may be regarded as inefficient disinfection, in the back yards and gardens of houses in the town.

The reported number of cases in each year since notification came into force have appeared greater than in other towns similarly circumstanced, from the fact that mild and anomalous cases have been notified as enteric fever to an extent not perhaps elsewhere practised."

NON-NOTIFIABLE ZYMOTIC DISEASES.

Measles.

An unusually large number of cases occurred in February, March and April, fourteen deaths resulted including one visitor, and, with the exception of one, all were complicated with bronchitis or pneumonia.

It is exceptional for measles to prove fatal in the upper walks of life, but its fatality among the working class is common, and is a result mainly due to the casual way in which measles is treated--or perhaps to speak more correctly left untreated—for it is commonly only thought necessary to call in medical aid when some complication supervenes. At present no preventive measures are taken in regard to measles except the occasional closing of schools, and it rests with the Committee to consider whether more active steps should be taken against this disease.

I am in favour of some system of notification, which was referred to in my monthly report for February.

The death rate was 0·73 per 1000, or more than twice the average rate.

Whooping Cough.

This disease, which so materially helps to raise the zymotic death rate, has this year contributed four deaths.

Carelessness is shown by the parents in the treatment of children suffering from whooping cough, and we can at present employ no means for the prevention of its spread.

The death rate was 0·22.

Diarrhœa.

During the hot weather in July and August seventeen deaths were registered, and three more in September.

Special interest has centred on this disease, and a note is made under enteric fever in view of the relations which exist between enteric fever, pollution of the soil and diarrhœa.

The death rate was 0·96.

Erysipelas.

Eleven notifications with one fatal case certified as gangrenous erysipelas.

Puerperal Fever.

One notification and death which was probably due to scarlet fever, as within ten days a case of this disease was notified occurring in the same house.

Influenza.

Has not been of a severe type, but few cases have occurred, and no death has been registered.

REGISTER OF RAINFALL IN 1896 & 1895.

TIME OF OBSERVATION, 9-0 A.M.

	1896.		1895.	
	Number of days on which rain fell.	Amount collected in inches.	Number of days on which rain fell.	Amount collected in inches.
January	10	·79	21	1·66
February	8	·68	6	·58
Mareh	18	2 62	14	1·24
April	9	·61	12	·95
May	5	·19	5	·16
June	9	2·78	5	·19
July	6	1·12	11	2·83
August	15	2·53	14	2·03
September	19	3·57	5	·89
Oetober	16	3·19	15	2·88
November	7	1·03	20	3 27
December	19	2·63	17	2·70
Totals	141	21·74	145	19·38

For the above table I am indebted to the courtesy of Mr. C. S. Bilham, Superintendent of the Southend Waterworks Company.

SANITARY DEPARTMENT.

The following summary of the work done by the Inspectors, shews that the appointment of an Assistant Inspector was a necessity, as a more systematic inspection of the district has been possible :—

Instructions from M.O.H. attended to	306
Inspections of District with M.O.H.	17
Nuisances abated	151
Notices served	214
Summonses taken out	3
Summonses adjourned	2
Convictions	1
Houses inspected	919
Lodging houses inspected	5
Workshops inspected	2
Wells inspected	70
Cisterns cleansed and repaired	4
Water supplied to W.C.	25
Samples of water sent to Analyst	7
Samples of earth and sand sent to Analyst	4
Overcrowding abated	2
Houses closed	1
Houses placed in habitable repair	1
Visits to Slaughterhouses	32
„ Bakehouses	83
„ Dairies and milk shops	157
„ Fruit shops	31
„ Fish shops	37
Cowsheds inspected	4
Cowsheds condemned and animals removed	1
Visits to Refreshment houses	124
Visits to Schools	15

As to testing of house drains—

Houses tested with smoke test	305
Houses tested with both smoke and water tests	45
Houses, defects remedied and re-tested	142
Number of visits for re-testing	568
Length of drains re-laid and tested	7760ft.

Number of Sanitary Certificates applied for and granted	24
Number of houses and additions for which certificates have been granted (Borough Surveyor's department)	265
Work done in connection with and after removal of Patients to Sanatorium—	
Number of cases removed to Sanatorium	106
„ „ Small Pox Hospital	2
Visits to Small Pox Hospital	37
Houses and rooms disinfected	217
Houses cleansed and disinfected	3
Schools disinfected	1
Articles removed from houses for disinfection	651
Destruction of infected bedding	2

Water.

With the exception of a few wells in the outlying district, the houses are supplied with water by the Southend-on-Sea Water Co. 240 houses were connected with the Company's mains the past year. The service is constant, and the supply unlimited. The advantage of the water supply being under the control of the Public Authority is generally recognised, and is a question I think the Council should consider.

An analysis of the water by Dr. Bernard Dyer is given below, and again indicates a high degree of purity.

	Grains per Gallon.
Total dissolved matter	65·52
Loss on Incineration of Residue	2·80
Chlorine in Chlorides	22·20
(Equal to Chloride of Sodium)	36·58
Nitrogen in Nitrates	·007
(Equal to Nitric Acid)	·028
Free (actual or saline) Ammonia	trace
Albuminoid (organic) Ammonia	trace
Oxygen Absorbed by Oxidisable Organic Matter, &c., from solution of Permanganate of Potash at a temperature of 80° Fahrenheit,	
In 15 minutes	·018
In 4 hours	·026
Phosphoric Acid	trace
Appearance in 2 feet tube	clear; yellowish green.

A bacteriological examination yields satisfactory results, and indicates a high degree of purity.

BERNARD DYER.

December 11th, 1896.

Milk Supply.

There were four cowsheds, with accommodation for fifty cows, and one of these (with thirteen cows) was in such an insanitary condition with neither drainage nor water supply that the occupier, on my recommendation, voluntarily removed the cows.

The twenty-six milk shops and dairies are in a satisfactory condition.

In a milk shop where a case of diphtheria occurred, the milk supply was discontinued, and a list of customers obtained.

The large number of 157 inspections has been made, as more care and cleanliness of workers is desirable. One difficulty experienced is the large quantity of milk imported from districts over which we have no control.

Slaughter Houses.

The six now in use are satisfactory.

Two new applications made for licenses, which were refused, the premises in both cases on inspection proved to be unfit for such purpose.

Public Abattoir. It is desirable that one should be established, and the use of private slaughter houses prohibited.

Bakehouses.

There are twenty-six bakehouses on the register in a clean and satisfactory condition. In two cases it was necessary to summon the occupiers for want of cleanliness, and in both cases the summonses were adjourned, and in the meantime the work specified was done.

Disposal of Refuse.

I presented a special report to the Committee, drawing attention to the nuisance arising from the burning of refuse in the open air in the brickfield near dwelling houses, and proved the necessity of the town disposing of its own refuse by the erection of a Destructor, which recommendation has been adopted.

House Refuse.

During the past year a house to house inspection has been made with reference to ashpits, dustbins, or receptacles for house refuse. It has been for some time past the custom in this neighbourhood to require the use of sanitary galvanized iron dustbins, as experience has shown that they are much more suitable than the out-of-date brick ashpits, and facilitate the weekly collection of house refuse, which I am glad to say is the system of collection satisfactorily carried out in this Borough. As a result of the inspection, up to the present time it has been found necessary to serve notices affecting 786 houses, in which cases the existing receptacles were either unsatisfactory, without proper lids or coverings, or without any receptacle at all, in each case the owner has been required to remedy any defects to existing receptacles or, as the case may be, to provide a proper sanitary dustbin, and care has been taken that the notices have been complied with, although it has been necessary in a number of cases for the Corporation themselves to provide the dustbin and to recover the cost from the owner.

Removal of Manure and Offensive Matter.

Complaints are frequently made, especially in the summer season, as to the removal through the streets at all hours of the day, of horse dung manure and manure and refuse matter from mews, stables, and other premises, and during the past year draft byelaws have been submitted to the Local Government Board under Section 26 of the Public Health Acts Amendment Act, 1890, for prescribing the times for removal or carriage through the streets of any fœcal or offensive or noxious matter; these byelaws are at present under consideration by the Local Government Board, and I trust the Board will see fit to approve the byelaws in such a form as will make them applicable to the removal of horse dung manure and manure and refuse matter from mews, stables, or other premises, in order that any further cause for complaint in this respect may be removed. There are at present byelaws in force restricting the removal of manure or other offensive matter unloaded from any barge or vessel, and it is very essential that these restrictions should be extended to the removal from any place through the streets of the Borough during certain hours of the day. I consider a provision of this kind especially necessary in a town which is a health resort.

Lavatories.

The following are the additional improvements during the past year :—

(*a*) Women's lavatories completed on Pier Hill.

(*b*) Enlargement of Men's lavatories on Pier Hill in course of progress, giving accommodation for 12 urinals, 9 w,c's., and 8 wash basins.

To be commenced :—

Lavatory accommodation for both sexes is to be provided in High Street. Men 17 w.c's., 24 urinals, and 14 wash basins. Women 21 w.c's., and 15 wash basins, and similar accommodation for both sexes is under consideration for the Marine Parade.

A Sub-Committee are inspecting the conveniences, etc., at Public and Refreshment Houses.

Sewers and Drains.

The Borough Surveyor (Mr. Harold Harlock) presented a report to the Highways and Works Committee on April 1st, and since adopted, on the "existing defects and management of the Sewers," after tabulating those with defects, and suggesting relaying, he refers to the management as follows :—

(*a*) Constant and continued attention by men deputed for that purpose,

(*b*) Cleansing and disinfection of gullies at stated intervals.

(*c*) Flushing to take place at the top end of sewers, and he recommends the use of man-holes fitted at bottom with a flushing door, and thus ensuring a full bore flush.

(*d*) Disinfection of sewers at the discretion of the Medical Officer of Health.

900 lineal feet of defective sewers have been relaid.

400 „ „ main drains relaid.

The disinfectant used the past year for flushing purposes was a solution of corrosive sublimate (1-500 to 1-1000) 445·650 gallons.

Ventilation of Sewers.

Nine new sewer ventilators have been fixed.

The six Keeling's ventilators consumed 67,100 cubic feet of gas. I am constantly receiving complaints of offensive smells arising from manholes, &c., and generally accompanied by the request that they should be closed.

The necessity for more ventilation is being considered, although much will be done to prevent offensive gases arising when the new sewerage schemes are in operation. I am in favour of leaving the manholes open, and against ventilation by means of Keeling's ventilators. The present system of erecting 4 or 6in. ventilating shafts is a questionable procedure, if only in relation to the number of bends in the shafts.

The Laying of House Drains.

Southend has suffered much in the past from defective and leaky house drains, and notwithstanding the improvements effected by the existing byelaws, I am of opinion that there is room for further improvement in the laying of house drains, as defective drains are at times discovered in comparatively new buildings, where such defects ought not to exist. I am glad to say that the Health Committee concur in my opinion that the existing byelaws, regulating the laying of drains, should be altered so as to make it compulsory to lay all house drains in concrete, and an application upon the subject is now before the Local Government Board.

The following is an extract from Clause 62 of the Byelaws now in force in the Borough with respect to new streets and buildings (allowed by the Local Government Board on the 20th September, 1881), and which Byelaw prescribes the mode of constructing drains.

"He shall cause every such drain to be of adequate size, "and, if constructed or adapted to be used for conveying sewage, "to have an internal diameter not less than four inches, and "to be laid with a proper fall, and with watertight, socketed, or "other suitable joints."

It is desired to amend the above so as to read as follows:—

"He shall cause every such drain to be of adequate size, "and, if constructed or adapted to be used for conveying sewage, "to have an internal diameter not less than four inches, and to "be laid *in a bed of good concrete* with a proper fall, and with "watertight, socketed, or other suitable joints."

I understand the Local Government Board have in other towns allowed a byelaw in the latter form, and I trust the amendment proposed will receive the Board's approval.

To quote from a note upon the subject in the fourth edition of "Knight's Annotated Model Byelaws."—"The need for laying such a "drain in a bed of good concrete should be recognized even "where the soil is stiff clay, since the bottom of the trench in "which it it laid is necessarily disturbed ground, lacking the "requisite solidity to bear the inevitable pressure resulting from "the final 'ramming in' of the trench; sewage, also, from an "accidental leakage, will often travel for a distance along the "side of a drain or through fissures in the clay."

In many parts of Southend the soil is not stiff clay, but gravel, brick-earth and made-up ground.

House-to-House Inspection.

This is in progress, and the result at present obtained shews how necessary it is to press on the work. The following is an instance of one street :—

No. of House Drains tested	...	100
,, ,,	found smoke tight	25
,, ,,	leaking slightly	47
,, ,,	leaking badly ...	28

From under one house six cartloads of polluted soil were removed.

Common or Back Passages.

I am glad to be able to note that the recommendation contained in my monthly report of September last is being acted upon, and that the Highways and Works Committee have already approved plans, etc. for making up (under the Private Street Works Act) a back passage at the rear of the west side of Prittlewell Square, and also a back passage at the rear of Oxford Terrace, and that instructions have been given the Borough Surveyor to prepare plans with reference to other similar places. I am confident that the result will be highly satisfactory from a sanitary point of view.

Prittlewell.

As I mentioned in my last year's report, the drainage consists of 37 privies with cesspools, the overflow passing into a tank, and thus again into a brook which empties itself into the river.

The new sewer which has been laid in Sutton Road will, when extended, allow of draining part of Prittlewell; but further means of drainage should be considered.

THE BOROUGH SEWERAGE SYSTEMS.

The present sewerage systems within the Borough are all arranged so that the sewers of each are connected directly to the outfall pipes, which deliver on to the foreshore at varying distances from the shore; and the sewage is discharged by gravitation at all states of the tide.

As a consequence, the low lying parts have their sewers water-logged each tide, and during extraordinary high tides they are surcharged to street level in the lowest part of the Borough. During rain storms, the lower lying areas are liable to flooding from the down-rush of waters from the higher lands, and particularly so when high tide coincides with the rain storm.

Some of the sewers in these low lying areas are not watertight, and it is believed that the subsoil is polluted by the sewage escaping from them when under pressure.

There is now no reason to doubt that the sewage from the outfalls does return to the foreshore with the rising tide.

Eastern Valley Sewerage Scheme.

This new sewerage scheme in course of construction is designed to avoid these defects of water-logging, flooding, subsoil and foreshore pollution.

The Borough is for sewage purposes divided into two parts, known respectively as the Eastern and Western Valleys.

The Eastern Valley contains the bulk of the population at the present time, and includes Cliff Town and all the lands to the east and north thereof. It is for this portion that the new sewerage works are in course of construction.

The principal feature of the new system is the division of the district into high and low level areas, which are, as regards sewers, absolutely cut off from each other.

Broadly speaking, all houses which are ten feet above high water level and more are connected to the gravitation system, and are thus placed well beyond the influence of the tides.

The lower lying houses are to have a complete new system of deep sewers discharging into a receiving well at the pumping station, and are to be completely cut off from the tidal outfalls. In this way the low level area is also protected from tidal influences.

New intercepting sewers are being constructed at the division lines of the high and low level areas, by means of which the sewage from the higher parts is discharged by gravitation into a covered storage tank, holding 540,000 gallons, and which cut off the sewers of the gravitation area from those of the pumping area.

The sewage from the low level is to be lifted into the storage tank by a gas pumping plant, consisting of three sets of engines and pumps, two of which are in duplicate and deal with the dry weather flow, while the third is a reserve for storm waters.

The deep sewers in the low level area are all tested for water-tightness before they are covered up, and each has to stand a head of water of two feet at the upper end without loss for two hours before they are approved, and as a fact they are watertight. When the house drains are disconnected from the tidal sewers and connected to the deep sewers they will be laid with similar thoroughness.

By these systems of sewers the present defects of flooding, water-logging, and subsoil pollution will be done away with.

The storage tank has a top water level of four feet above high water, and the bottom is also four feet above mean tide level. The outfall pipe from it is 27 inches in internal diameter, and is carried right across the foreshore, for a length of 1,800 yards from the shore line, into lowest low water 600 yards east of the Pier.

The discharge of the sewage is to be regulated by penstocks, which will be shut down two hours before low water. The sewage in dry weather will then be stored in the tank for about eight hours, and the penstocks opened at high water. The discharge will thus be confined to the first $4\frac{1}{4}$ hours of the ebb tide, and the last two hours of the ebb tide will carry the sewage away so far as to prevent the rising tide bringing any of it back to the foreshore.

In addition to the 27-inch outfall sewer there is a 36-inch overflow sewer, which discharges on to the foreshore, which will be brought into action only during very heavy rain storms.

At the storage tank there is an arrangement of weirs, by means of which the 27-inch sewer is made to go full bore before the 36-inch sewer is called upon to discharge anything.

When a population of 30,000 persons is sewered by this new system, the average discharging capacity of the 27-inch sewer will be six times as great as the dry weather flow of sewage, which means that the contents of the 36-inch sewer will be diluted from six to 35 times before it can be used.

The action of the weirs is such that at low tide when the 36-inch outfall will discharge directly on to the foreshore, the 27-inch sewer has its maximum discharging capacity, and this increases the dilution in the 36-inch pipe from six to thirteen times the dry weather flow.

As the present population in the Eastern Valley is about 15,000, the figures as to dilution are practically doubled at the outset, and will reach those previously stated as the population increases.

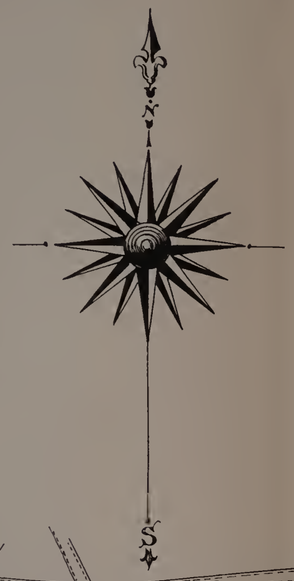
The works are well forward, and will be put into operation this summer.

Arrangements are in progress for sewering the Western Valley on the same lines.

I am indebted to Mr. George R. Strachan, of the firm of Messrs. Mansergh, for kindly giving me particulars, and to Mr. James McKie, the resident engineer, for the plan of scheme.

SOUTHEND CORPORATION SEWERAGE WORKS. 1896.

GENERAL PLAN.



GRAVITATION AREA

LONDON TILBURY AND SOUTHEND RAILWAY.

Southchurch Hall

Grove House

Bogs Wood

A L E X A N D R A R O A D

PRITTLEWELL SQUARE

Clifftown Parade

Clifton Terrace

ROYAL TERRACE

Pier Hotel

St John's Church

21 INCH

24" 1 IN 400

30 INCH

High Water Flushing Pipe Mark of Ordinary Tides

12 INCH PIPES 1 IN 200

15" PIPES

12 INCH PIPES 1 IN 150

42 INCH BRICK BARREL

1 IN 500

Marine Park

LOW LEVEL AREA

STORAGE TANK

24" 1 IN 800

21" 1 IN 700

36" C.I. OVERFLOW PIPE 1 IN 396

27" C.I. OUTFALL PIPE 1 IN 340

15" Rising Main

PUMPING ST.

Prospect Place Wesleyan Methodist Chapel

Castle P.H.

Gas Works

15 INCH PIPES

PIPES 1 IN 350

Proposed Recreation Grounds.

Camper House

High Water Mark of Ordinary Tides.

15" 1 IN 350

Flushing Pipe

27" C.I. OUTFALL PIPE

PRESENT OUTFALL 15 INCH C.I. PIPES.

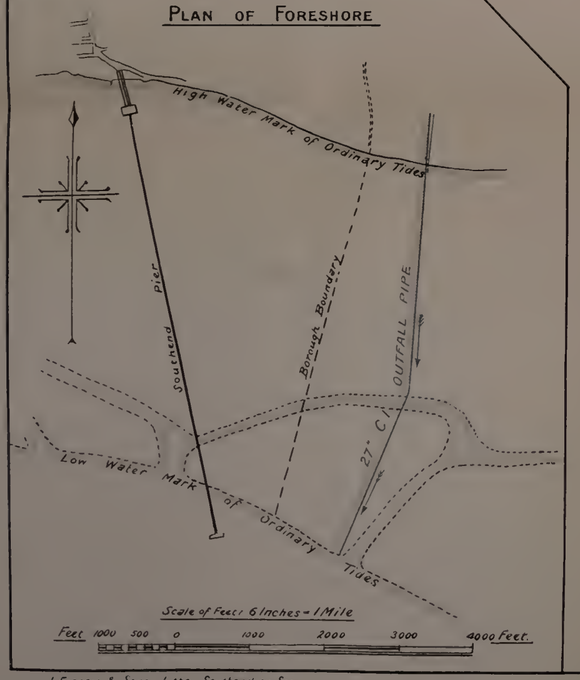
Pier

Southend

Borough Boundary

See 6" Plan in bottom left hand corner

PLAN OF FORESHORE



Scale of Feet 6 Inches = 1 Mile

Feet 1000 500 0 1000 2000 3000 4000 Feet.

REFERENCE

Intercepting Sewers	...ged Red thus
Low Level Sewers and Rising Main	" Brown "
Cast Iron Sewers	" Blue "
Manholes	"
Lampholes	"
Southend Borough Boundary	Green "
Existing Sewers	"

Scale — 1/2500

Feet — 100 0 500 1000 1500 2000 Feet

James Wilkie M.I.C.E.
Resident Engineer

Feb 17th 1897.

J. Francis & Sons, Litho. Southend-on-Sea

THE BOROUGH SANATORIUM.

The two new ward blocks, with accommodation for ten patients, the administrative block, laundry, etc., have been in use since March. A discharging room and laboratory are almost completed.

The staff consists of medical superintendent (M.O.H.), nurse-matron (Miss Thompson), two staff and one assistant nurses, a probationer, two ward maids, a general servant, laundress and porter.

The following table shews number of patients treated in the Sanatorium during 1896.

Disease.	Remaining in the Hospital on Dec. 31, 1895.	Admitted during 1896.	Total number treated during 1896.	Number discharged during 1896.	Number who have died in the Hospital during 1896.	Remaining under treatment on Dec, 31, 1896.
Variola	1	2	3	3	—	—
Scarlet Fever ...	4	60	64	53	1	10
Diphtheria ...	1	22	23	22	1	—
Enteric Fever ...	8	29	37	30	6	1
Other Diseases ...	1	2	3	3	—	—
Totals ...	15	115	130	111	8	11

Deaths.

Total case rate	6·83	per cent.
Enteric case rate	19·67	,,
Diphtheria case rate ...	4·34	,,
Scarlet Fever	1·73	,,

Scarlet Fever. The one death was that of a woman aged 22 who arrived in the town with rash well developed, and was admitted the following day with a temperature of 105°.

Diphtheria. The low death rate may be attributed to the injection of antitoxin, as several cases which would have been considered

hopeless before the discovery of this specific, readily yielded to treatment. The one death was that of a boy aged 5 years, admitted in a dying condition.

Enteric Fever. Of the 6 deaths, four were admitted in the third week of the disease. One case that of a girl admitted in a delirious state, the following day to arrival in the town, and death resulted within 48 hours. The remaining death was a boy aged 9 notified in 1895. The higher death rate is fully accounted for by the severity of the cases on admission.

Patients are admitted on the order of the Medical Superintendent, who undertakes treatment, unless the medical practitioner notifying wishes to attend.

Of the 130 patients under treatment during 1896, 102 were under my care, and these included 13 paupers.

The "Washington-Lyons" steam disinfector has been largely used the past year. The following is a list of articles removed to Sanatorium for disinfection :—

83 Beds	36 Counterpanes
106 Blankets	49 Bolsters
119 Pillows	199 Various articles
59 Palliasses	

Small-pox Hospital.

The three cases of small-pox included in above table were treated in a galvanised iron structure situate in Stoker's Lane, and I regret to say that this has been removed, and the Borough is now without proper hospital accommodation for this disease, although this want will soon be remedied.

MISCELLANEOUS.

Dr. R. Bruce Low's report to the Local Government Board on Recent Prevalence of Infectious Diseases in the Borough of Southend-on-Sea.

The following are the principal items :—

1. Causes of Enteric Fever and Diphtheria.
2. Cleansing, ventilation and gradients of sewers requires more careful supervision.
3. Necessity for a Refuse Destructor.
4. House Drainage.
5. Drainage of Pier Pavilion.
6. Overcrowding of Lodging Houses.
7. Public Conveniences.

All the above recommendations I have referred to in my report with the exception of overcrowding and drainage of Pier Pavilion; the former will be the subject of a special report in the coming summer, and the drainage of the latter will soon be effected.

Dr. Timbrell Bulstode's report on Oyster Culture in relation to Disease.

Southend-on-Sea occupies a prominent position in this report, and I am glad to say everything has been done to prevent any further suspicion of Southend oysters causing enteric fever.

The eastern and western oyster layings have been closed, the former until such time as the Eastern Valley Sewerage Scheme is in operation, and the latter indefinitely.

Floating boxes (for storing oysters). These were removed in 1895 from near the Pier (at the instance of the Committee), but unfortunately the owners took them to Southchurch Beach, outside the Borough. The boxes have been done away with, and no storage even for a day or two will be allowed on the foreshore.

Dr. Timbrell Bulstrode thinks the beds at Hadleigh Ray may possibly be polluted by the Western Valley Outfall, omitting to mention that Leigh has several sewage outfalls directly opposite the beds.

Schools.

The five Public Elementary Schools have been inspected at various times.

A special report on the London Road Board Schools appeared in my monthly report for August, in consequence of an outbreak of scarlet fever, and my recommendations when referred to the School Board were agreed to, and the work is in course of progress.

The following is the summary :—

1. Increased ventilation of classrooms.
2. Lighting and ventilation of boys' W.C.'s.
3. Provision of two additional W.C.'s for girls.
4. Drinking accommodation. To have three additional taps provided for Boys' School, and four additional ones for the Girls' School, with two fixed cups to each.
5. Heating. To be considered after other work is accomplished.
6. Overcrowding to be discontinued.
7. Slate washing. To require the washing of slates with a solution of permanganate of potash before morning and afternoon school.

The following notices are sent to the Head Teachers of the respective schools in the town, and when measles and scarlet fever were prevalent the teachers were asked to notice if any child complained of being ill, the special peculiarities of the diseases being explained.

BOROUGH OF SOUTHEND-ON-SEA. HEALTH DEPARTMENT.

To the Head Teacher of School.

I have to inform you that

of is suffering from

and request you will not receive any child from that house until a certificate be sent notifying that all danger of infection is passed.

.....

Medical Officer of Health.

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BOROUGH OF SOUTHEND-ON-SEA. HEALTH DEPARTMENT.

To the Head Teacher of School.

This is to Certify that the house

occupied by is now free from infection,

and the children may return to School.

.....

Medical Officer of Health.

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Borough Cemetery.

The purchase of 15 acres of land in Sutton Road has been completed, the sanction of the Local Government Board and Home Office having been obtained.

An application was made to the Home Office for powers to enlarge St. John's Burial Ground, the Committee opposing such increase on sanitary grounds.

Combined Drainage.

Southend Town Council, in common with many other local authorities, suffers materially through the unsatisfactory state of the law with regard to the liability for maintenance and repair of main drains and private sewers, which are created by the system known as "combined drainage." It has been the practice for years past to permit combined drainage of houses, and plans for new buildings have from time to time been passed by the late Local Board and the Town Council showing the system referred to. This practice has unfortunately entailed upon the Corporation in many cases the responsibility for the maintenance and repair of what are really private drains or sewers running through private property, and for the repair whereof one would think the owner of the property should be responsible, and not the local authority.

I am glad to note that by taking advantage of Section 23 of the Southend-on-Sea Corporation Act 1895 (which makes undertakings given by or on behalf of any owner of property on the passing of plans or otherwise in connection with the property of such owner binding upon the owner of the property for the time being), the Corporation have been able to stop any increase of liability with regard to main drains or private sewers, inasmuch as upon the passing of plans for new buildings the Corporation decline to approve the system of combined drainage unless an undertaking be entered into indemnifying the Corporation from any liability for maintenance and repair, and casting the responsibility therefor upon the owners of the property for the time being.

Proposed Incorporation of Southchurch.

Sanitary reasons in support of incorporation :—

The houses known as Western Terrace and Nursery Place discharge their waste water, together with surface drainage, into a ditch at the rear of the houses, which gives rise to foul smells; the sewage is conveyed into cess-pits.

At Croxson's Corner there are about twenty houses, the water supply being limited to two pumps, one in the yard belonging to a shop, the other situate in open ground, and to which the occupiers appear to have common access. This latter pump is frequently out of repair, and at times there is difficulty in obtaining water. Cesspools also exist, and the waste and surface water is disposed of somewhat similarly to the mode adopted at Nursery Place.

There are houses along Southchurch Beach with ground floors below high water level, and the sewage wherefrom is discharged by short outfalls on to the foreshore.

From the advantages derived by Southend by their Sewage Outfall Scheme now being constructed (which is more carefully referred to in another part of this report), Southend will have great facilities for improving the drainage of Southchurch if incorporated.

I am strongly in favour of the proposal to incorporate Southchurch within the Borough. At the present time, looking at the close proximity of the two places, Southend is liable to suffer from the existence of infectious disease in Southchurch, close to the eastern boundary, without the fact becoming known to me, and consequently without one being able to take the usual steps to isolate and prevent the spread of disease. Having regard to the fact that Southchurch is visited by numbers of people in the summer season, it is important, in the interests of the health of both places, that the responsibility for dealing with cases of infectious disease in both places should be under one and the same authority.

There is no provision for isolation in Southchurch ; on the other hand, Southend is possessed of a modern and well-equipped Isolation Hospital.

SUMMARY OF IMPROVEMENTS COMMENCED DURING THE YEAR 1896.

1. Eastern Valley Sewerage Scheme (will be in operation June, 1897.)
2. House-to-House Inspection.
3. Making-up of Common or Back Passages (under Private Street Works Act.)
4. Lavatory Accommodation for both sexes.
5. Public Baths.
6. Discharging Room and Laboratory at Sanatorium.
7. Borough Cemetery, (Sanction of Local Government and Home Office obtained.)

To be Commenced—

1. Western Valley Sewerage Scheme.
2. Erection of Small-pox Hospital.
3. Erection of a Destructor.
4. Additional Lavatory Accommodation for both sexes.

To be Considered—

1. Public Abattoir.
2. Public Control of Water Supply.
3. Drainage of Prittlewell.

TABLE OF **DEATHS** *during the year 1896, in*

Diseases, Ages,

Names of Localities adopted for the purpose of these Statistics; public institutions being shown as separate localities. (*Columns for Population and Births are in Table B*). (*a*)	Mortality from all Causes at Subjoined Ages.						
	At all ages. (*b*)	Under 1 year. (*c*)	1 and under 5 (*d*)	5 and under 15 (*e*)	15 and under 25 (*f*)	25 and under 65 (*g*)	65 and upwards (*h*)
ST. JOHN'S	153	31	15	15	9	46	37
ALL SAINTS	58	25	13	2	...	9	9
ST. MARY'S	64	18	12	1	7	13	13
SANATORIUM	8	...	...	2	3	3	...
VICTORIA HOSPITAL ...	4	...	1	1	...	2	...
ST. MARY'S CONVENT ...	3	...	...	3	...	...	...
NAZARETH HOUSE	5	...	1	3	...	...	1
Totals ...	295	74	42	27	19	73	60

The subjoined numbers have also to be taken into

Deaths occurring outside the district among persons belonging thereto.	6	...	...	1	...	4	1
Deaths occurring within the district among persons not belonging thereto.	25	4	3	3	3	10	2

Board Table (A).

the Borough of Southend-on-Sea, classified according to

and LOCALITIES.

(*i*)	MORTALITY FROM SUBJOINED CAUSES, DISTINGUISHING DEATHS OF CHILDREN UNDER FIVE YEARS OF AGE.															
	Scarlatina.	Diphtheria.	Membranous Croup.	FEVERS: Enteric or Typhoid.	FEVERS: Puerperal.	Erysipelas.	Measles.	Whooping Cough.	Diarrhœa and Dysentery.	Rheumatic Fever.	Phthisis.	Bronchitis, Pneumonia & Pleurisy.	Heart Disease.	Cancer.	Injuries.	All other Diseases.	TOTALS.
Under 5		2	1				3	2	10			6		1	1	20	46
5 upwds.		3		3		1				1	8	10	21	10	2	48	107
Under 5		1	1				5		7			6				18	38
5 upwds.								1			6	1	1	5	1	5	20
Under 5		1					6		3			9				11	30
5 upwds.		1		1	1						6	7	8	3		7	34
Under 5																	
5 upwds.	1	1		6													8
Under 5																	
5 upwds.															3	1	4
Under 5																	
5 upwds.											3						3
Under 5											1						1
5 upwds.								1			1					2	4
Under 5		4	2				14	2	20		1	21		1	1	49	115
5 upwds.	1	5		10	1	1		2		1	24	18	30	18	6	63	180

account in judging of the above records of mortality.

Under 5																	
5 upwds.											2		2			2	6
Under 5		1					1		3								5
5 upwds.	1	2		2								4			2	9	20

TABLE OF POPULATION. BIRTHS, AND OF NEW CASES OF INFECTIOUS SICKNESS, *coming to the knowledge of the Medical Officer of Health during the year 1896, in the Borough of Southend-on-Sea Urban District; classified according to* DISEASES. AGES *and* LOCALITIES.

NAMES OF LOCALITIES adopted for the purpose of these Statistics; Public Institutions being shown as separate localities. (a)	Population at all Ages. Census 1891. (b)	Population at all Ages. Estimated to middle of 1896. (c)	Registered Births. (d)	Aged under 5 or over 5. (e)	New Cases of Sickness in each Locality, coming to the knowledge of the Medical Officer of Health. Smallpox.	Scarlatina.	Diphtheria.	Membranous Croup.	Fevers. Enteric or Typhoid.	Fevers. Puerperal	Erysipelas.	Notified as Enteric and withdrawn.	Number of such Cases Removed from their Homes in the several Localities for Treatment in Isolation Hospital, Smallpox.	Scarlatina.	Diphtheria.	Fevers. Enteric or Typhoid.	Fevers. Continued	Other Diseases.
ST. JOHN'S ..				Under 5		8	4	1	2					6	1			
				5 upwds.		65	29		56		8	3		35	12	16		2
ALL SAINTS ..				Uuder 5		1	2	1						1				
				5 upwds.		13	4		17					9	1	7		
ST. MARY'S (H) ..				Under 5		3	2								1			
				5 upwds	2	11	6		10	1	2		2	7	2	4		
SANATORIUM ...	12333	17529	474	Under 5														
				5 upwds.					2							2		
ST. MARY'S HOME.				Under 5														
				5 upwds.		1			5					1				
ST. MARY'S CONVENT				Under 5														
				5 upwds			9								5			
NAZARETH HOUSE				Under 5														
				5 upwds.							5							
VICTORIA HOSPITAL				Under 5														
				5 upwds.										1				
TOTALS ...	12333	17529	474	Under 5		12	8	2	2					7	2			
				5 upwds	2	90	48		90	1	11	3	2	53	20	29		2

(H) District in which Sanitary Hospital is situated.